RAJALAKSHMI
ENGINEERING COLLEGE
An AUTONOMOUS Institution
Affiliated to ANNA UNIVERSITY, Chennai

TICKET FARE PREDICTION FOR AIRLINE INDUSTRY USING DATA ANALYTICS

TEAM MEMBERS:

Giribala K S(201001024)

Karan K K (201001040)

Kiran Raj P(201001044)

Muthusamy S(201001062)

TEAM MENTOR:

Nisha R S

Asst.Professor (SG)

Department of IT / REC

Abstract

The airline industry is highly competitive and dynamic, making it essential for airlines to accurately predict ticket prices to stay ahead of the competition. Data analytics has emerged as a powerful tool to forecast ticket prices and gain valuable insights into customer behavior. In this study, we employ data analytics techniques to analyze historical airline ticket pricing data and identify patterns and trends. We also explore the impact of various factors such as seasonality, market demand, fuel prices, and competition on ticket prices. Using machine learning algorithms, we develop a predictive model that can forecast ticket prices accurately. Our findings suggest that data analytics can significantly improve ticket price prediction accuracy, helping airlines optimize their pricing strategies and increase profitability.

Idea?

Problem Statement!

Requirement Analysis

Functional requirements are a set of features or capabilities that a system or software must possess to meet the needs of its users. For an airline ticket forecaster using data analytics, some possible functional requirements are:

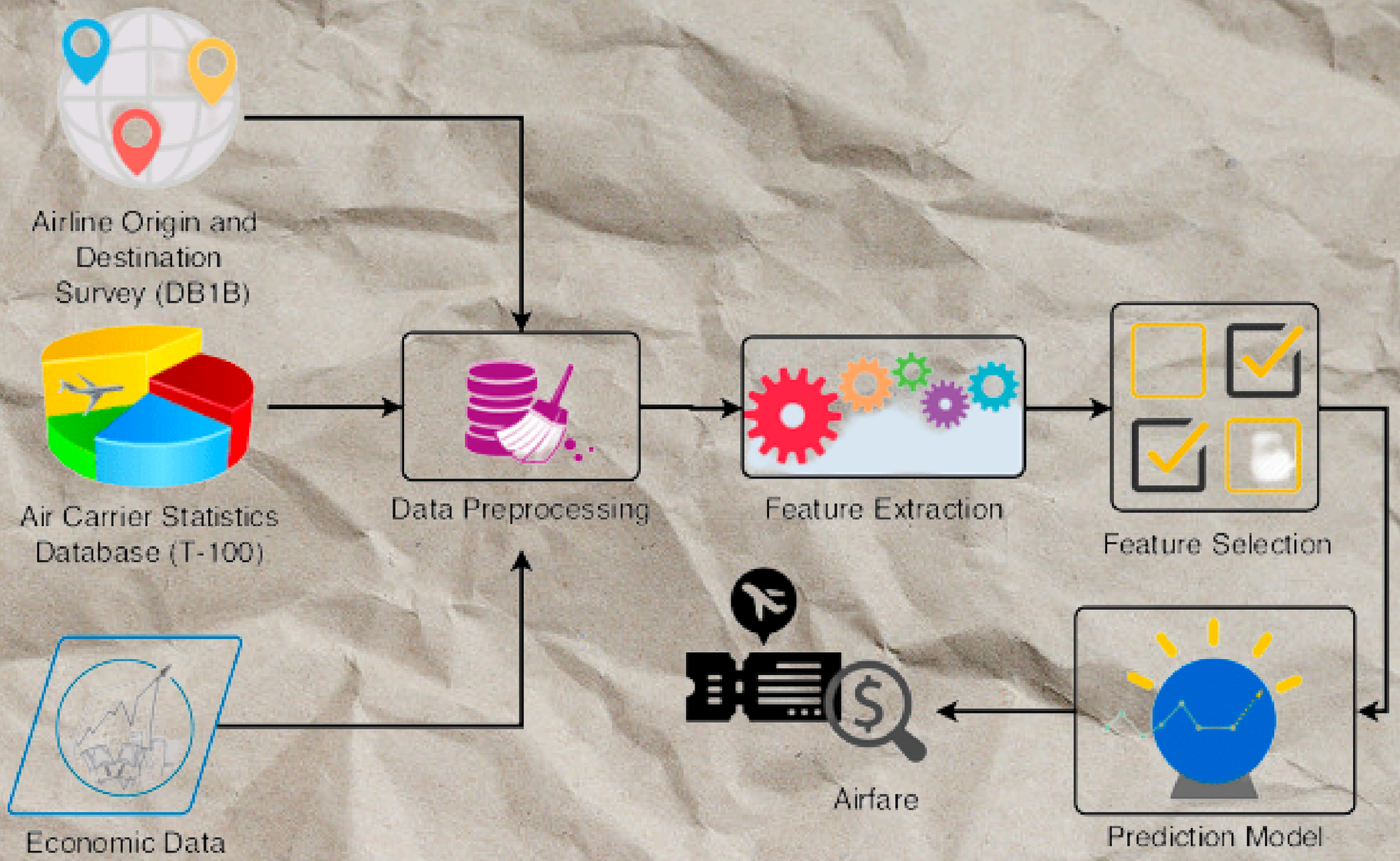
Data ingestion and processing
Data analysis and modeling
User interface and visualization
Forecasting and optimization
Integration and scalability

Requirement Analysis

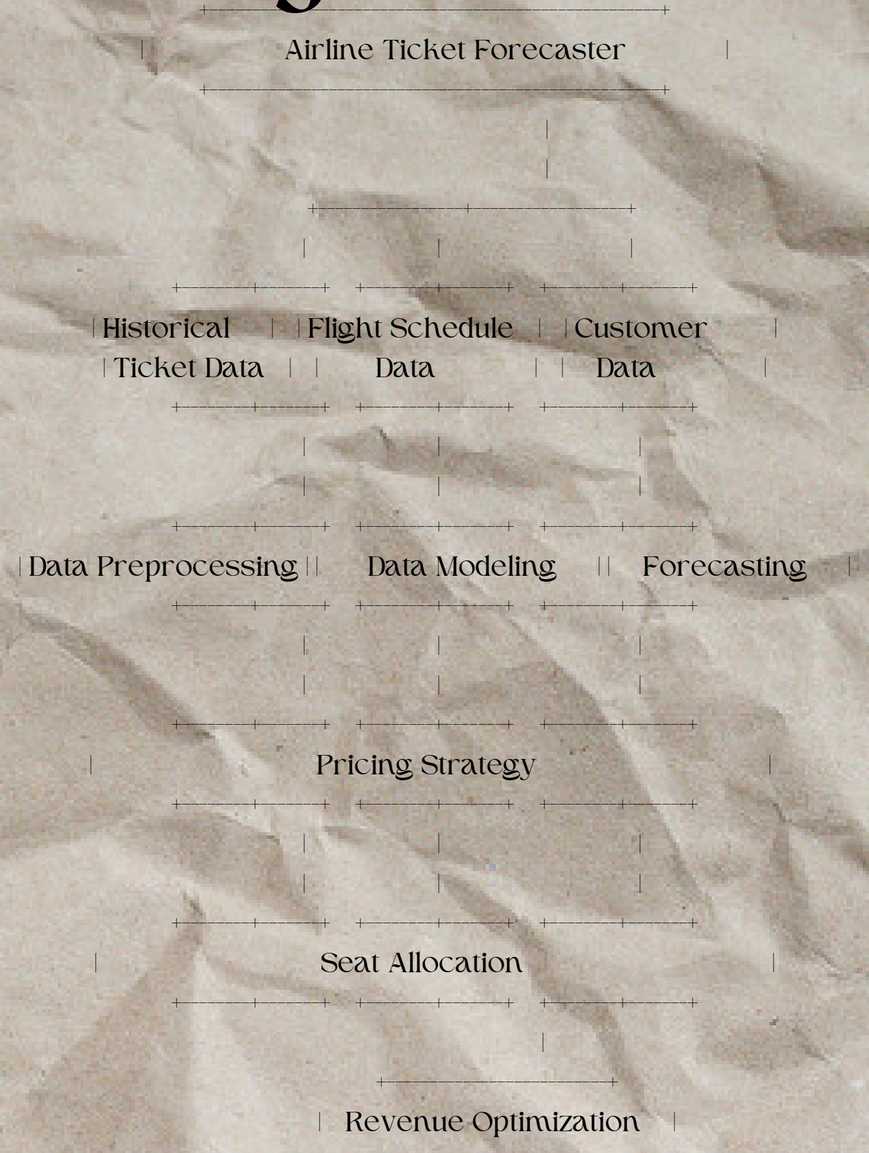
Non-functional requirements are characteristics or qualities that a system or software must possess, in addition to functional requirements, to ensure its usability, reliability, and performance. For an airline ticket forecaster using data analytics, some possible non-functional requirements are:

- Performance
- Security
- Scalability
- Reliability
- Usability
- Compatibility

Project Model



Project Model



Project Planning

Sprint Goal:
The goal of this sprint is to collect and preprocess the necessary data for building the airline ticket forecaster model.

Tasks:

- Identify the data sources for collecting historical airline ticket prices, such as government datasets, airline APIs, or web scraping tools.
- Collect the historical data for a few popular routes and airlines, spanning at least a year.
- Clean and preprocess the data to remove outliers, missing values, and inconsistent formatting.
- Identify additional features that can improve the accuracy of the model, such as flight schedules, holidays, weather data, and geopolitical events.
- Collect and preprocess the additional features data and merge it with the historical ticket price data.
- Save the preprocessed data as a structured dataset in a standard format, such as CSV or JSON.

Project Planning

Deliverables:

1. A list of data sources used for collecting the historical ticket prices and additional features.
2. A cleaned and preprocessed dataset with historical ticket prices and additional features for a few popular routes and airlines.
3. A brief report summarizing the data collection and preprocessing steps, and any issues or challenges encountered during the process.

Note: The above plan is just a sample, and the actual sprint plan may vary depending on the specific requirements and constraints of the project.

Project Planning

Deliverables	Deadline
Task 1: List of data sources	End of day 1
Task 2: Historical ticket pricing data and relevant external data	End of day 2
Task 3: Preprocessed dataset	End of day 3
Task 4: Exploratory data analysis report	End of Day 4

Note that the above schedule assumes a 5-day workweek and that each day consists of 8 hours of work. The actual delivery schedule may vary depending on the availability of team members and any unexpected issues or challenges that may arise during the sprint. It's important to note that sprint delivery schedules are flexible, and adjustments can be made as needed. The goal of the sprint is to deliver a working product that meets the sprint goal, and it's important to prioritize quality over speed. If necessary, tasks can be extended to ensure the quality of the work.

Testing

To test the airline ticket forecast system using data analytics, you can follow these steps for user acceptance testing:

Define the testing criteria
Set up test data
Test basic functionality
Test accuracy of forecasts
Test pricing strategy
Test responsiveness
Test user feedback

Results

Actual Price Vs Predicted Price

1992	1965
7484	8907
40	9646
10041	13941
7323	8382
...	
9225	7594
4020	5224
5284	3173
3330	2754
7188	8759

//Human error

//Accuracy

86.98865005742411

Future Enhancement

- Integration with Booking Platforms
- Enhanced Personalization
- Multi-modal Travel Prediction
- Price Trend Analysis
- Collaborations with Airlines and Travel Agencies

THANK YOU